Application No. 10/535,360
Technology Center 3754
Submission Accompanying RCE under 37 CFR §1.114

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): A flexible, tubular metal device with an internal diameter up to 60 millimeters, the device comprising a metal wall in which are formed one or more <u>nonhelical</u> corrugated convolutions that define a <u>nonhelical</u> corrugated outside surface <u>of the device</u> and a <u>nonhelical</u> corrugated inside surface of the ~~device and are oriented perpendicular to a longitudinal axis of the~~ device, each of the convolutions having <u>rounded radially-outward portions and rounded radially-inward portions axially adjacent each other,</u> ~~oppositely-disposed rounded top portions and bottom portions,~~ the outside surface <u>defined by each convolution</u> of the device having first and second sections with change positions therebetween, <u>the first section of each convolution</u> ~~each of the first sections~~ extending from one of the change positions to another of the change positions via one of the <u>radially-outward</u> ~~top~~ portions, <u>the second section of each convolution</u> ~~each of the second~~

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~~sections~~ extending from one of the change positions to another of the change

positions via one of the radially-inward ~~bottom~~ portions, the length of each of

the first sections being at least 10% longer than the length of each of the

second sections, the outside surface of each convolution having a non-

constant curvature derived from a curve that is continuous in the first and

second sections and defined by the intersection of the outside surface and a

plane through the ~~a~~ longitudinal axis of the device, the curvature of the

outside surface being numerically smaller at each of the radially-outward ~~top~~

portions than at each of the radially-inward ~~bottom~~ portions, the curve within

each of the first sections having one global maximum located within the

radially-outward portion thereof, the curve within each of the second sections

having a global minimum located at the radially-inward portion thereof, the

curvature of the curve changing sign only once at each of the change

positions.

Claim 2 (Previously presented): A device according to claim 1,

wherein the length of each of the first sections is at least 50% longer than the

length of each of the second sections.

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Claim 3 (Currently amended): A device according to claim 1,

wherein the curvature of the convolutions is numerically at least 20% smaller

within the <u>radially-outward</u> ~~top~~ portions than within the <u>radially-inward</u> ~~bottom~~

portions.

Claim 4 (Previously presented): A device according to claim 1,

wherein the convolutions have a pitch-height ratio (q) of about 0.7 to about

1.0.

Claim 5 (Canceled)

Claim 6 (Currently amended): A device according to claim 1,

wherein <u>the curvature of the curve within each first section</u> has a local

minimum curvature <u>at the global maximum.</u> ~~between each adjacent pair of the~~

~~top and bottom portions thereof.~~

Claim 7 (Currently amended): A device according to <u>claim 1,</u>

wherein ~~claim 5, wherein a section of~~ the curve <u>comprises a curve portion</u>

<u>that</u> extends from a point corresponding to the global minimum at a first of the

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radially-inward ~~bottom~~ portions, through the global maximum at an

immediately adjacent one of the radially-outward ~~top~~ portions, and to a point

corresponding to the global minimum at a second of the radially-inward

~~bottom~~ portions immediately adjacent the one of the radially-outward ~~top~~

portions, the section of the curve being symmetric about an axis perpendicular

to the longitudinal axis and through the global maximum within the

immediately adjacent one of the radially-outward ~~top~~ portions.

Claim 8 (Previously presented): A device according to claim 1,

wherein a majority of the convolutions are substantially identical.

Claim 9 (Previously presented): A device according to claim 1,

wherein the device is made of an extruded metal alloy pipe and the

convolutions are formed in a deep drawing process.

Claim 10 (Previously presented): A device according to claim 9,

wherein the metal alloy is stainless steel or an aluminium alloy.

Claim 11 (Currently amended): A flexible, tubular bellows with an

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internal diameter up to 60 millimeters, the bellows being defined by a metal

wall in which are formed nonhelical corrugated convolutions that define a

nonhelical corrugated outside surface of the bellows and a nonhelical

corrugated inside surface of the bellows and are oriented perpendicular to a

longitudinal axis of the bellows, each of the convolutions having rounded

diametrically-opposed radially-outward portions and rounded diametrically-

opposed radially-inward portions axially adjacent each other, oppositely-

disposed rounded top and bottom portions, the outside surface defined by

each convolution of the bellows having first and second sections with change

positions therebetween, the first section of each convolution each of the first

sections extending from one of the change positions to another of the change

positions via one of the radially-outward top portions, the second section of

each convolution each of the second sections extending from one of the

change positions to another of the change positions via one of the radially-

inward bottom portions, the length of each of the first sections being at least

10% longer than the length of each of the second sections, the outside surface

of each convolution having a non-constant curvature derived from a curve that

is continuous in the first and second sections and defined by the intersection

of the outside surface and a plane through a longitudinal axis of the bellows,

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the curvature of the outside surface being numerically smaller at <u>each of</u> the

<u>radially-outward</u> ~~top~~ portions than at <u>each of</u> the <u>radially-inward</u> ~~bottom~~

portions, <u>the curve within each of the first sections having one global</u>

<u>maximum located at the radially-outward portion thereof, the curve within each</u>

<u>of the second sections having a global minimum located at the radially-inward</u>

<u>portion thereof,</u> the curvature of the curve being zero at the change positions

and changing sign only once between adjacent pairs of the <u>radially-outward</u>

<u>and radially-inward</u> ~~top and bottom~~ portions at the change position

therebetween.

Claim 12 (New): A device according to claim 1, wherein the curve is

at least two times differentiable.

Claim 13 (New): A device according to claim 1, wherein the curve is

at least two times differentiable.

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